



Chapter 1

Summary

INTRODUCTION

The City of Beaverton has recently completed a thorough review of its transportation system with the 2015 Transportation System Plan. This plan was aimed at fulfilling *Transportation Planning Rule* (TPR) requirements for comprehensive transportation planning in cities in Oregon. The 2015 TSP addressed current problem areas and looked into the future (2015) to identify needs created by growth. Since the adoption of the 2015 TSP, Metro has completed the Regional Transportation Plan (August 2000) based upon 2020 future needs. The State Transportation Planning Rule calls for local agencies to adopt their TSP within 12 months of the completion of a Regional Transportation Plan. To meet this requirement, this Transportation System Plan Update has been prepared. Its aim is to fulfill state mandates for comprehensive planning in Beaverton, to update and address current problem areas, to update and address future needs created by the estimated growth from 2015 to 2020, and bring the Beaverton TSP in alignment with the Regional Transportation Plan.

The TSP provides specific information regarding transportation needs to guide future transportation investment in the City and determine how land use and transportation decisions can be brought together beneficially for the City. This plan addresses issues outlined in the recently adopted Metro's *Regional Transportation Plan* (RTP), ODOT's Oregon Highway Plan (OHP), and considers issues being studied in the Washington County TSP, which is currently under study.

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Plan Process

The Beaverton Transportation System Plan Update process included the following elements:

- Inventory/Data Collection to a year 2000 baseline
- Evaluate Existing Conditions and Future Travel Needs Through Forecasting
- Update Needs by Mode and Consider Alternatives
- Refine Improvement Lists to Mitigate Deficiencies by Mode For 2020 Conditions
- Update Planning and Cost Estimates of Improvements
- Draft TSP

The transportation system was broken into five basic modes (or mode groups):

- Pedestrians
- Bicycles
- Transit
- Motor Vehicles
- Other Modes (Including Rail, Air, Water, Pipeline, etc.)

As with the adopted 2015 TSP, the TSP Update's planning objective was to optimize each of these modes of transportation within Beaverton with the 2020 forecasted travel demand. The following sections summarize the findings of the Transportation System Plan studies. Many of the findings from the 2015 TSP are consistent with the RTP and assessment of the 2020 needs. The motor vehicle mode was the only mode requiring extensive additional consideration and analysis to address 2020 needs. Therefore, this TSP Update does not include detailed chapters on each of the travel modes as written in the previous TSP (those chapters adequately address those modal strategies and needs). Specific chapters of this report address TSP Goals and Policies (Chapter 2), Existing Conditions (Chapter 3), and Future Needs and Alternatives (Chapter 4).

Several City of Beaverton Traffic Commission meetings and TSP Technical Advisory Committee (TAC) meetings were held over the course of the study. The Traffic Commission addressed goals and policies related to transportation in Beaverton, transportation needs by mode (motor vehicles, bicycle, pedestrian, transit, other modes, etc.), strategies for choosing alternatives, and review of transportation alternatives. The TAC topics included review of land use information, travel demand forecasting issues, goals and policies, and coordination with adjacent jurisdictions.

GOAL AND POLICIES

Background

The City of Beaverton Draft TSP Update Goals and Policies consist of seven transportation goals with related policies organized under each goal. The Goals and Policies are not prioritized, and reflect the City of Beaverton's citywide transportation goals (Comprehensive Plan page xv). The goals are brief guiding statements that describe a desired result. The policies describe the actions needed to move the community toward a goal. Input and comments received from the Beaverton Traffic Commission, the Beaverton TSP Update Technical Advisory Committee, and Beaverton staff have been incorporated to update and refine the 2015 TSP. The intent of the update was to simplify statements and reflect recent policy information adopted by Metro and ODOT.

The policies are provided in this summary with background information and further explanation in Chapter 2.

- 6.2.1. Goal: Transportation facilities designed and constructed in a manner to enhance Beaverton's livability and meet federal, state, regional, and local requirements.**
- 6.2.2. Goal: A balanced transportation system.**
- 6.2.3. Goal: A safe transportation system.**
- 6.2.4. Goal: An efficient transportation system that reduces the percentage of trips by single occupant vehicles, reduces the number and length of trips, limits congestion, and improves air quality.**
- 6.2.5. Goal: Transportation facilities that serve and are accessible to all members of the community.**
- 6.2.6. Goal: Transportation facilities that provide efficient movement of goods.**
- 6.2.7. Goal: Implement the transportation plan by working cooperatively with federal, State, regional, and local governments, the private sector, and residents. Create a stable, flexible financial system.**

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TSM/TDM

Transportation System Management

Transportation System Management (TSM) focuses on low cost strategies to enhance operational performance of the transportation system by seeking solutions to immediate transportation problems, finding ways to better manage transportation, maximizing urban mobility, and treating all modes of travel as a coordinated system. These types of measures include such things as signal improvements, ramp metering, traffic calming, access management, intelligent transportation solutions (ITS) and programs that enhance and smooth transit operations. Typically, the most significant measures that can provide tangible benefits to the traveling public are traffic signal coordination and systems.

TSM measures focus primarily on region wide improvements, however there are a number of TSM measures that could be used in a smaller scale environment such as the Beaverton area. The following TSM measures list summarizes strategies that could be appropriate for the Beaverton 2020 TSP study area.

- Traffic monitoring and surveillance
- Signal coordination and optimization
- Signal priority
- Information availability
- Incident management

TSM Summary

All of the previously mentioned measures of TSM can work together in a transportation environment to help reduce congestion and decrease travel times for travelers. Table 1-1 summarizes the RTP projects that support Beaverton TSM. Beyond the RTP designated TSM projects, the City of Beaverton should coordinate with Tri-Met, ODOT, and Washington County in providing signal priority at signalized intersections along rapid or frequent bus routes (TV Highway and Cedar Hills/Hall corridor – approximately 50 intersections) to increase transit efficiently, reduce transit travel times, and promote non-SOV person trips. Signal priority should be activated for transit vehicles that are operating behind schedule. The implementation of additional strategies should be on a case-by-case basis and evaluated as to the effectiveness.

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Table 1-1: RTP Projects supporting TSM

(1998 Dollars)

RTP Project Number	Description	Estimated Cost	Projected Implementation
3016	Washington County: Acquire hardware for new traffic operations center and conduct needs analysis	\$1,000,000	2000-2005
3061	TV Highway: Interconnect signals from 209 th Avenue to ORE 217	\$1,500,000	2006-2010
3063	Murray Boulevard: Signal coordination from TV Highway to Allen	\$50,000	2000-2005
6012	Western Avenue: Implement TSM improvements between Allen and Canyon Road and extend Western Avenue north to Canyon Road near Walker	\$2,500,000	2011-2020
6025	Scholls Ferry Road: Implement appropriate TSM strategies, from ORE 217 to 125 th Avenue, such as signal interconnects, signal re-timing and channelization to improve traffic flows	\$500,000	2000-2005

Source: *Regional Transportation Plan*, Metro, August 2000.

Transportation Demand Management

Transportation Demand Management (TDM) is the general term used to describe any action that removes single occupant vehicle trips from the roadway network during peak travel demand periods. As growth in the Beaverton area occurs, the number of vehicle trips and travel demand in the area will also increase. The ability to change a user's travel behavior and provide alternative mode choices will help accommodate this growth.

Generally, TDM focuses on reducing vehicle miles traveled and promoting alternative modes of travel for large employers of an area. This is due in part to the Employee Commute Options (ECO) rules that were passed by the Oregon Legislature in 1993 to help protect the health of Portland area residents from air pollution and to ensure that the area complied with the Federal Clean Air Act.¹ Research has shown that a comprehensive set of complementary policies implemented over a large geographic area can have an effect on the number of vehicle miles traveled to/from that area.² However, the same research indicates that in order for TDM measures to be effective, they should go beyond the low-cost, uncontroversial measures commonly used such as carpooling, transportation coordinators/associations, priority parking spaces, etc. The more effective TDM measures include elements related to parking and

¹ Oregon Administrative Rules, Chapter 340, Division 30.

² *The Potential for Land Use Demand Management Policies to Reduce Automobile Trips*, ODOT, by ECO Northwest, June 1992.

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congestion pricing, improved services for alternative modes of travel, and other market-based measures.

With many regional trips destined to, or traveling through, the Beaverton area, region wide TDM measures should help to reduce congestion. Metro has established non-SOV (Single Occupancy Vehicle) mode share targets by 2040 for regional centers (similar to Gateway). These targets may also serve as performance measures for areas that have been designated as “Areas of Special Concern” (Beaverton Regional Center is classified by Metro as this type of area).³ The 2040 non-SOV model target for regional centers, town centers, light rail transit (LRT) communities, main streets, and corridors is 45-55%.⁴

Several TDM strategies were developed in the 2015 TSP that are aimed at achieving the Metro 2040 non-SOV targets. The ranking of the strategies follows from most important to least important:

- Encourage linkage of housing, retail, and employment centers
- Provide incentives to take transit and use other modes (i.e., free transit pass)
- Flexible working hours
- Schedule deliveries outside of peak hours
- Coordinate shift changes/staggered work hours
- Telecommuting
- Participate in Westside Transportation Alliance
- Provide information regarding commute options to larger employers
- Work with property owners to install bicycle racks and bicycle amenities

The 2015 TSP recommended TDM plan, along with multi-modal improvements, should help the City of Beaverton achieve the Metro 2040 non-SOV targets and comply with state, regional, and county policy. The recommended action plan for the City of Beaverton remains as the following:

- Encourage development that effectively mixes land uses to reduce vehicle trip generation. These plans may include development of linkages (particularly non-auto) that support greater use of alternative modes. Land use density should be higher at transit stations (half mile radius) than elsewhere in the community.
- Develop consistent conditions for land use approval that require all future employment related land use developments to agree to reduce peak hour trip making, through individual or collective TDM efforts. For example, measures which are appropriate for site planning such as close-in parking for carpools, bicycle parking, shower facilities, and convenient transit stops should be considered in the

³ Based on the 2000 Metro Regional Transportation Plan, Ordinance No. 00-869A (August 10, 2000), page 1-32.

⁴ Based on the 2000 Metro Regional Transportation Plan, Ordinance No. 00-869A (August 10, 2000), page 1-62.

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design review process.

- Support continued efforts by Washington County, ODOT, DEQ, Tri-Met, and the Westside Transportation Alliance to develop productive TDM measures that reduce VMT and peak hour trips, including investigating transit pass programs with city employers and implementing a fareless area in the downtown regional center (there are currently 46 employers in Beaverton with transit pass programs, two of which are in the regional center). This may require City funding of TDM management to get maximum benefit or results (possibly \$25,000 to \$75,000 per year).
- As a capital oriented element, coordinate with ODOT and Tri-Met on the development of park-and-ride transit station or freeway interchange locations in Beaverton (these are locations proven to be successful in attracting carpool/transit use). The Transit Master Plan, Figure 4-9, shows current park-and-ride locations. Expansion of these sites should focus on transit station or freeway interchange locations. Interchange reconstruction projects should be required to identify potential sites for park-and-ride (even small sites of 50 spaces). Over the next 20 years, a reasonable budget for park-and-ride expansion might be about \$100,000 per year (about 50 spaces a year, assuming pre-existing ROW).
- Continued implementation of motor vehicle and bicycle minimum and maximum parking ratios for new development (per Development Code 60.20).
- Implementation of downtown connectivity plan as well as local street connectivity improvements identified in Appendix E.
- Implementation of bicycle, pedestrian, motor vehicle and transit system action plan.

Pedestrian

The existing pedestrian system network map was updated from the previous TSP to reflect recent improvements and the expanded TSP Study Area. In most cases sidewalk improvements are aimed at closing gaps in the existing sidewalk network to provide connectivity rather than capacity. In other words, it is much more important that a continuous sidewalk be available than it be of a certain type or size.

The 2000 Regional Transportation System Plan (RTP) includes designations for pedestrian districts and transit/mixed use corridors (see Figure 1-1). The RTP defines pedestrian districts as areas of high or potentially high pedestrian activity where regional policy places priority on creating a safe, direct, and attractive pedestrian environment. In general, these are areas planned for compact, mixed-use development served by transit and correspond to the following 2040 design type designations within the City of Beaverton: regional centers, town centers, and light rail communities. The corresponding areas within the City of Beaverton include the Murray/Scholls Town Center, the Washington Square Regional Center, downtown Beaverton, and the LRT communities. Areas such as these areas are characterized by buildings oriented to the street and by boulevard street design features such as wider sidewalks with buffering from traffic, marked street crossing at intersections, pedestrian-scale lighting, benches, bus shelters, and street trees. Transit/mixed-use corridors are defined as priority areas for pedestrian travel that are served by good quality transit service and that will generate substantial pedestrian traffic near neighborhood-oriented retail development, schools, parks, and bus stops. These corridors should include such design features as wide sidewalks with buffering from traffic, pedestrian scale-lighting, benches, bus shelters, and street trees. The 2040 design type designation for transit/mixed-use corridors is “Corridors”. The corresponding corridor areas within the City of Beaverton include TV Highway-Canyon Road, BH Highway-Farmington Road, Murray Boulevard, Cedar Hills Boulevard, Hall Boulevard, and Walker Road. As shown in Figure 1-1, the Pedestrian Facilities Master Plan identifies improvements to provide a connected pedestrian network to and within the RTP designated pedestrian districts and transit/mixed use corridors. The City of Beaverton Development Code regulations should require new development in the pedestrian districts and transit/mixed use corridors to comply with the RTP descriptions listed above.

The most important existing pedestrian need in Beaverton is a well-connected pedestrian system within a half-mile grid and connectivity to light rail transit (LRT) stations and key centers in Beaverton (parks, schools, retail, etc.). Needs include safe, direct and convenient access to transit and crossings of large arterial streets which act as barriers to pedestrian movement, marked crossings at major transit stops, as well as an inventory of local street sidewalk locations in order to complete a detailed sidewalk connectivity plan. A well connected pedestrian system in the pedestrian districts and transit/mixed use corridors will insure direct and logical pedestrian crossing at transit stops. The City of Beaverton should coordinate with Washington County, Tri-Met, Metro, and ODOT to ensure that major transit stops will be located at sites with a signalized

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and/or marked pedestrian crossing. In the future, pedestrian needs will be similar in the City, but there will be additional activity centers that will need to be considered and interconnected. The ranking of pedestrian strategies has not changed from the previous TSP and is listed from most important to least important:

- Connect key pedestrian corridors to schools, parks, recreational uses and activity centers (public facilities, commercial areas, etc.)
- Fill in gaps in the network where some sidewalks exist
- Pedestrian corridors to transit stations and stops
- Signalized pedestrian crossings
- Pedestrian corridors that connect neighborhoods
- Improve streets having sidewalks on one side to two sides
- As development occurs, construction of sidewalks by developers
- Pedestrian corridors that commuters might use
- Reconstruct all existing substandard sidewalks to the City of Beaverton Standards

The Pedestrian Master Plan (Figure 1-1) is an overall plan and summarizes the desired framework plan to meet local and regional policy. The more specific, shorter-term Action Plan was updated to include completed improvements and the expanded study area, as well as projects from the Regional Transportation System Plan (RTP) that were not in the previous TSP Pedestrian Action Plan. The Action Plan (Table 1-2) consists of projects that the City or responsible agency could give priority to when funding becomes available. As development occurs, streets are rebuilt, and other opportunities (such as grant programs) arise, projects on the Master Plan should be pursued as well. In addition, all development projects should include an inventory of local street sidewalk conditions in order to populate the City database of sidewalk locations. Table 1-3 lists pedestrian system improvement projects that have committed funds.

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Table 1-2: Pedestrian Action Plan

(2001 Dollars)

Project	From	To	Approximate Cost (\$1000's dollars)
<i>Priority: Connect key pedestrian corridors to schools, parks, recreational uses and activity centers</i>			
155 th Avenue	Davis Road	Nora-Beard Road	410
US 26/Bethany Trail Crossing	US 26	US 26	100
Study US 26 Trail Crossings	143 rd Avenue	Canyon Road	80
Study and Improve unsignalized trail crossing of roadways	City jurisdiction		10,000
Link Fanno Creek Path over ORE 217 at Denney	ORE 217	ORE 217	100
Study Fanno Creek Path	Rock Creek	Fanno Creek Greenway	80
<i>Priority: Fill in gaps in pedestrian network</i>			
TV Highway/Canyon Road (gaps on one-side)	Murray Blvd	170 th Avenue	470
TV Highway/Canyon Road (Boulevard Design)	ORE 217	Murray Blvd	8,000
Canyon Road/TV Highway (sidewalks and crossings)	91 st Avenue	ORE 217	1,465
Canyon Road	US 26	110 th Avenue	6,750
Cedar Hills Boulevard	Butner Road	US 26 WB off ramp	124
Murray Boulevard (gaps on one side)	Jenkins Road	Millikan Way	100
Murray Boulevard (gaps)	Farmington	TV Highway	112
Denney Road	Nimbus Avenue	Scholls Ferry Road	241
Allen Boulevard (gaps)	Western Avenue	Scholls Ferry Road	69
Western Avenue	5 th Street	800 feet south of 5 th	55
Division Street	149 th Avenue	170 th Avenue	365
Davies Road (east side)	Scholls Ferry Road	Hiteon Drive	76
Scholls Ferry Road (gaps)	Barrows Road (west end)	Beaverton-Hillsdale Highway	1,893
Scholls Ferry Road	BH Highway	Raleighwood Way	151
SW Park Way (gaps)	Walker Road	ORE 217	213

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Project	From	To	Approximate Cost (\$1000's dollars)
Cornell Road (gaps)	158 th Avenue	US 26 WB off ramp	101
Barnes Road	Tuefel Lane	Viewmont Drive	118
Garden Home Road	77 th Avenue	76 th Avenue	43
Multnomah Boulevard	Garden Home Road	Wash. County line	198
92 nd Avenue	Allen Boulevard	Garden Home Road	302
Garden Home Road (gaps one-side)	92 nd Avenue	77 th Avenue	242
Hall Boulevard	Cascade Avenue	ORE 217 SB ramp	23
Hall Boulevard (gaps one-side)	ORE 217 SB ramp	Approximately 470 ft. west of ramp	34
Barnes Road (gaps one-side)	117 th Avenue	Stark Street	104
Barnes Road	Stark Street	Approximately 100 ft. west of Stark St.	14
Cornell Road (gaps one side)	Approximately 500 ft west of Science Park Dr.	Approximately 500 ft east of 153 rd Ave.	101
110 th Avenue (gap-one side)	Beaverton-Hillsdale Hwy	Canyon Road	34
Priority: Pedestrian corridors to transit stations and stops			
160 th Avenue	TV Highway	Davis Road	358
117 th Avenue (gaps-one side)	Light Rail Transit Line	Center Street	34
Downtown Beaverton Connectivity collector roadways	Hocken Avenue/ TV Highway	110 th Avenue/ Cabot Street	1,033
Pedestrian Access to MAX	LRT Stations		1,148
Priority: Construct sidewalks with roadway improvement projects*			
125 th Avenue	Hall Boulevard	Brockman Road	193
Hall Boulevard	Cedar Hills	Hocken/Terman	Part of road improv.
Farmington Road	172 nd Avenue	185 th Avenue	218
Nimbus Avenue	Denney Road	Cirrus Drive	138
Walker Road	ORE 217	Canyon Road	209
Walker Road (gaps)	173 rd Avenue	Mayfield Avenue	441
Davies Road	Scholls Ferry Road	Barrows Road	61
Murray Boulevard	Scholls Ferry Road	Barrows Road	110

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Project	From	To	Approximate Cost (\$1000's dollars)
170 th Avenue	Alexander Street	Baseline/Jenkins	366
173 rd Avenue	Cornell Road	Bronson Road	55
Hart Road (gaps)	Hall Boulevard	Murray Boulevard	49
Cornell Road (one-side)	158 th Avenue	185 th Avenue	165
Oak Street/Davis Road/Allen (gaps)	160 th Avenue	170 th Avenue	244
Allen Boulevard (gaps)	Alice Lane	Western Avenue	112
Nora-Beard Road	175 th Avenue	155 th Avenue	281
Weir Road	175 th Avenue	160 th Avenue	248
175 th Avenue-Rigert Road	170 th Avenue	Scholls Ferry Road	755
Jenkins Road	153 rd Avenue	Murray Boulevard	112
Hart Road/Bany Road (gaps)	170 th Avenue	185 th Avenue	214
SW Beaverton collector roadway	Scholls Ferry Road	175 th Avenue	346
Johnson Street Extension	170 th Avenue	209 th Avenue	Part of road improv.
Barnes Road Improvements	Highway 217	119 th Avenue	Part of road improv.
Barnes Road Improvements	Saltzman Road	119 th Avenue	Part of road improv.
Cornell Road Improvements	US 26	143 rd Avenue	Part of road improv.
Cornell Road Improvements	143 rd Avenue	Saltzman Road	Part of road improv.
Cornell Road Boulevard Improvements	Barnes Road	Trail Street	2,295
Murray Boulevard Improvement	Science Park Drive	Cornell Road	Part of road improv.
Oleson Road	Fanno Creek	Hall	Part of road improv.
ORE 217 Overcrossing roadway	Scholls Ferry Road	Nimbus	Part of road improv.
Murray/Scholls Ferry Town Center – extensions and new roadways			Part of road improv.
103 rd Avenue	Walker Road	Western Boulevard	Part of road improv.
SW Beaverton circulation roadway	High Hill Lane	Nora-Beard Road	275
Priority: Pedestrian corridors that connect neighborhoods			
SW Butner Road (one side)	Murray Boulevard	Park Way	296
SW Downing Road (gaps on south side)	Murray Boulevard	Meadow Drive	41
Meadow Drive (one side)	Downing Road	Walker Road	38
Laurelwood Avenue/87 th Avenue	Canyon Road	Scholls Ferry Road	434

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Project	From	To	Approximate Cost (\$1000's dollars)
Jamieson Road	Pinehurst Drive/Cypress	Scholls Ferry Road	206
Cypress Street	Jamieson Road	Elm Avenue	79
Sexton Mountain Drive (gaps)	Maverick Terrace	Nora-Beard Road	296
91 st Avenue	Canyon Road	BH Highway	1,970
96 th Avenue (one side)	Canyon Road	Beaverton-Hillsdale Highway	90
Pedestrian Action Plan Projects Total Cost:			\$ 45,078

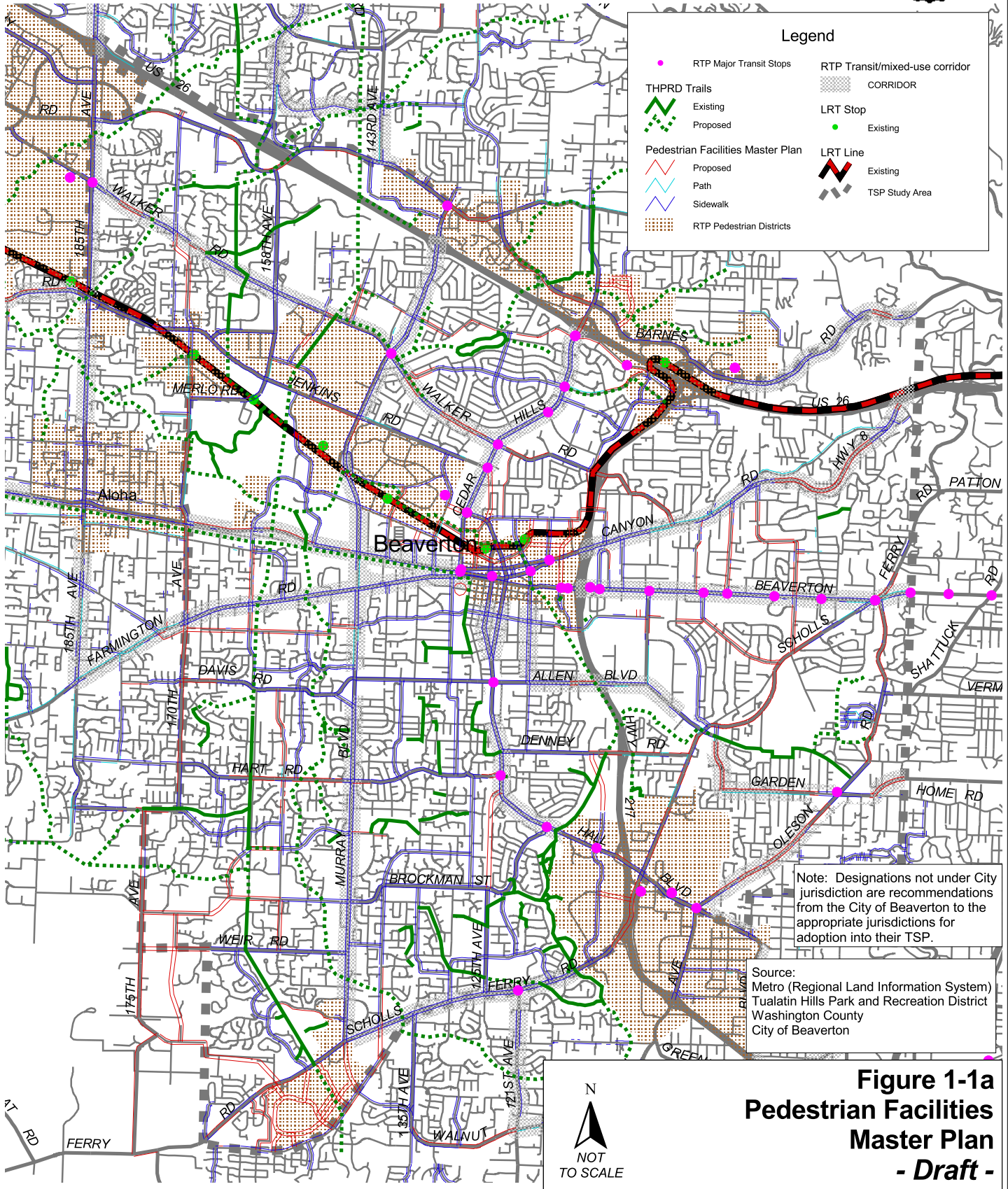
*Sidewalks to be built with roadway improvement projects are dependent on the ROW and alignment of the road improvement and would not be built without the road improvement

Table 1-3: Pedestrian Action Plan – Projects with Committed Funds

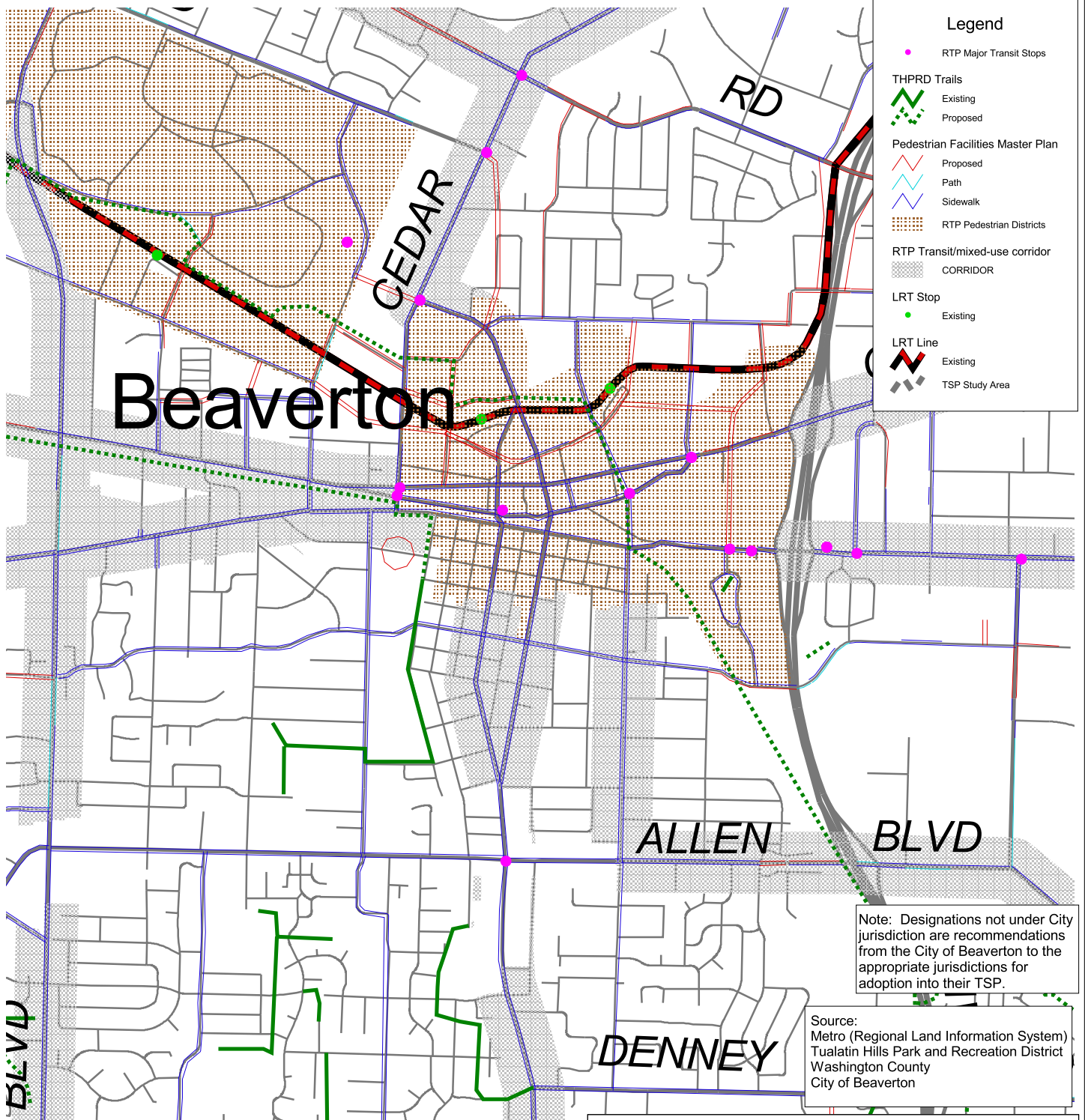
(2001 Dollars)

Project	From	To	Approximate Cost (\$1000's dollars)
<i>Priority: Connect key pedestrian corridors to schools, parks, recreational uses and activity centers</i>			
170 th Avenue	Rigert Road	Alexander Street	515
170 th /173 rd Avenue	Baseline/Jenkins	Walker Road	220
Millikan Way	Hocken Avenue	Cedar Hills Blvd	57
Hart Road/Bany Road (gaps)	Murray Boulevard	170 th Avenue	236
Pedestrian Improvement Project Committed Funds Total Cost:			\$ 1,028

City of Beaverton Transportation System Plan



**City of Beaverton
Transportation System Plan**



**Figure 1-1b
Pedestrian Facilities
Master Plan
- Draft -**

Bicycle

The Bicycle Master Plan has been updated from the previous TSP to include completed improvement projects and the expanded TSP Study Area (See Figure 1-2). Bikeway improvements are aimed at closing the gaps in the bicycle network along arterial and collector roadways. The ranking of the bicycle strategies has not changed from the previous TSP and is listed from most important to least important:

- Connect Key bicycle corridors to schools, parks, recreational uses and activity centers (public facilities, commercial areas, etc.)
- Fill in gaps in the network where some segments of bikeway exist
- Bicycle corridors that connect neighborhoods
- Construct bike lanes with roadway improvement projects
- Bicycle corridors that commuters might use
- Bicycle corridors providing mobility to and within commercial areas

The 2000 Metro RTP includes a bicycle functional classification system with the following designations (shown on Figure 1-2):

- **Regional Access Bikeway:** Function focuses on accessibility to and within the central city, regional centers, and larger town centers. Travel time is an important factor as these bikeways generally have high volumes.
- **Regional Corridor Bikeway:** Functions as longer routes that provide point-to-point connection between the central city, regional centers, and larger town centers. Generally higher automobile speeds and volumes than community connector bikeways.
- **Community Connector Bikeway:** Connect smaller town centers, main streets, station areas, industrial areas, and other regional attractions.
- **Multi-use paths with bicycle transportation function:** Likely to be used for commuting to work or school, accessing transit, or travelling to a store, library, or other local destination. Bicycle/pedestrian sidewalks on bridges are included in this classification. Design includes physical separation from motor vehicle traffic by open space or barrier.

The Bicycle Master Plan builds from state policy from the Transportation Planning Rule that all arterial and collector roads have bike lanes. The Action Plan is consistent with plans developed by Metro, Washington County, and the State, including providing bikeways consistent with each of the Metro RTP designated bikeways. Additional linkages with lanes or accommodations are outlined to make a complete network. The Bicycle Action Plan (Table 1-4) consists of projects that the City should actively try to fund in the next ten years. With the action plan, a substantial bicycle network would be in place and would allow attention to move toward infill Master Plan

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projects. The bicycle plan will require incremental implementation. As development occurs, streets are rebuilt and other project funding opportunities (such as grant programs) arise, projects on the Master Plan should be integrated into project development. Many of the projects would be elements of multi-modal street improvement projects (e.g. Murray Boulevard extension). The City, through its Capital Improvement Program, joint funding with other agencies (County, Metro, State) and development approval would implement these projects. Table 1-5 lists bicycle system improvement projects with funds already committed.

Table 1-4: Bicycle Action Plan

(2001 Dollars)

Project	From	To	Approximate Cost (\$1000's of dollars)
<i>Priority: Connect key bicycle corridors to schools, parks, recreational uses and activity centers</i>			
Greenway Road	Hall Boulevard	125 th Avenue	266
155 th Avenue/Weir Road	Davis Road	Murray Boulevard	1,190
Millikan Way	Murray Boulevard	TV Highway	521
160 th Avenue	TV Highway	Davis Road	503
Canyon Road	142 nd Avenue	91 st Avenue	1,310
<i>Priority: Fill in gaps in bicycle network</i>			
Hall Boulevard bike lanes	Greenway	ORE 217	357
Hall Boulevard bike lanes	Beaverton-Hillsdale Hwy	Cedar Hills Blvd	78
Hall Boulevard Extension	Cedar Hills	Hocken/Terman	Part of road improv.
Watson Avenue bike lanes	Beaverton-Hillsdale Hwy	Hall Boulevard	68
Cedar Hills Boulevard bike lanes	Farmington Road	Walker Road	506
6 th Street bike lanes	Murray Boulevard	Menlo Drive	241
Murray Boulevard bike lanes (west side of Murray Boulevard)	Farmington Road	approximately 200 ft south of TV Highway	48
Denney Road bike lanes	Hall Boulevard	Scholls Ferry Road	684
Allen Boulevard bike lanes	approximately 200 ft east of Western Avenue	Scholls Ferry Road	221
Western Avenue bike lanes	Beaverton-Hillsdale Hwy	Allen Boulevard	337
Beaverton-Hillsdale Hwy bike lanes	ORE 217	91 st Avenue	520
Beaverton-Hillsdale Hwy bike lanes	91 st Avenue	Wash. County Bound.	1,023
Scholls Ferry Road	77 th Avenue	BH Highway	251

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Project	From	To	Approximate Cost (\$1000's of dollars)
Oleson Road	BH Highway	Terri Court	453
92 nd Avenue	Allen Boulevard	Garden Home Road	377
Garden Home Road	92 nd Avenue	Oleson Road	641
Scholls Ferry Road	Hall Boulevard	Cascade Avenue	328
Scholls Ferry Road	BH Highway	Wash. County Bound.	431
Taylors Ferry Road	Oleson Road	Washington Drive	137
Davies Road	Scholls Ferry Road	Barrows Road	187
Barrows Road	Scholls Ferry Road (east)	Scholls Ferry Road (west)	1,180
Scholls Ferry Road	Murray Boulevard	175 th Avenue	896
<i>Priority: Construct bike lanes with roadway improvement projects*</i>			
125 th Avenue bike lanes	Hall Boulevard	Brockman Road	302
Farmington Road Bikeway	Hocken Avenue	Highway 217	3,213
Walker Road bike lanes	ORE 217	Canyon Road	327
Walker Road bike lanes	Cedar Hills Boulevard	Lynnfield Lane	150
Walker Road bike lanes	178 th Avenue	185 th Avenue	309
Millikan Way bike lanes	Hocken Avenue	Cedar Hills Blvd	91
170 th Avenue bike lanes	Alexander Street	Baseline/Jenkins	573
173 rd Avenue bike lanes	Walker Road	Cornell Road	371
Hart Road/Bany Road bike lanes	167 th Avenue	170 th Avenue	69
Cornell Road bike lanes	158 th Avenue	185 th Avenue	516
Murray Boulevard bike lanes	Scholls Ferry Road	Barrows	172
Allen Boulevard bike lanes	ORE 217	Murray Boulevard	293
Allen Boulevard bike lanes	ORE 217	approximately 200 ft west of Western Ave	108
Nora-Beard Road bike lanes	175 th Avenue	155 th Avenue	499
Weir Road	175 th Avenue	155 th Avenue	448
Barnes Road Improvements	Saltzman Road	119 th Avenue	Part of road improv
Cornell Road Improvements	143 rd Avenue	Saltzman Road	Part of road improv
Canyon Road	US 26	110 th Avenue	6,750

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Project	From	To	Approximate Cost (\$1000's of dollars)
103 rd Avenue Connection	Walker Road	Western Avenue	Part of Road improv.
175 th Avenue-Rigert Road bike lanes	170 th Avenue	ORE 210	1,180
Bicycle Action Plan Projects Total Cost:			\$ 28,125

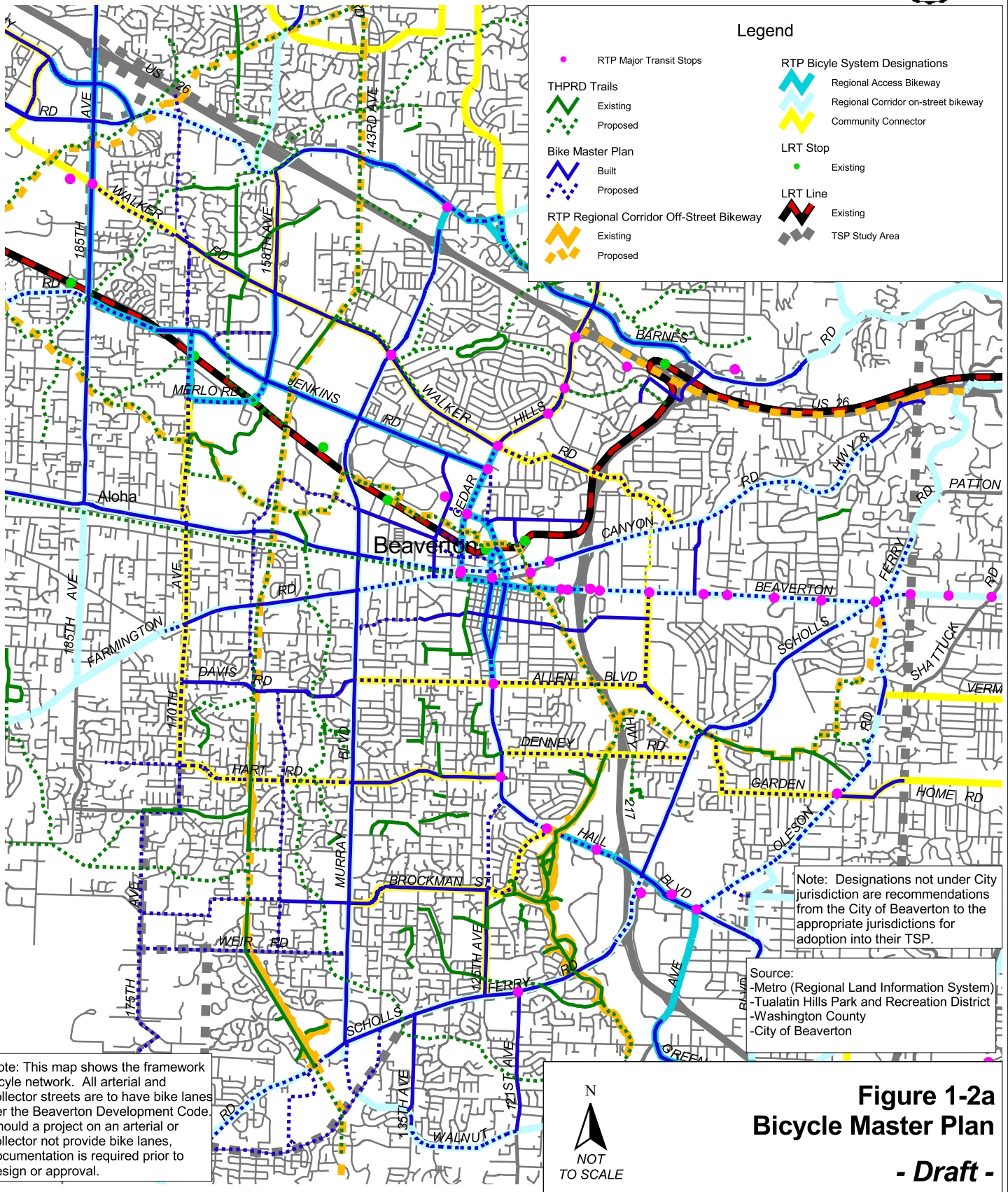
*Bike lanes to be built with roadway improvement projects are dependent on the ROW and alignment of the road improvement and would not be built without the road improvement

Table 1-5: Bicycle Action Plan – Committed Funding Projects

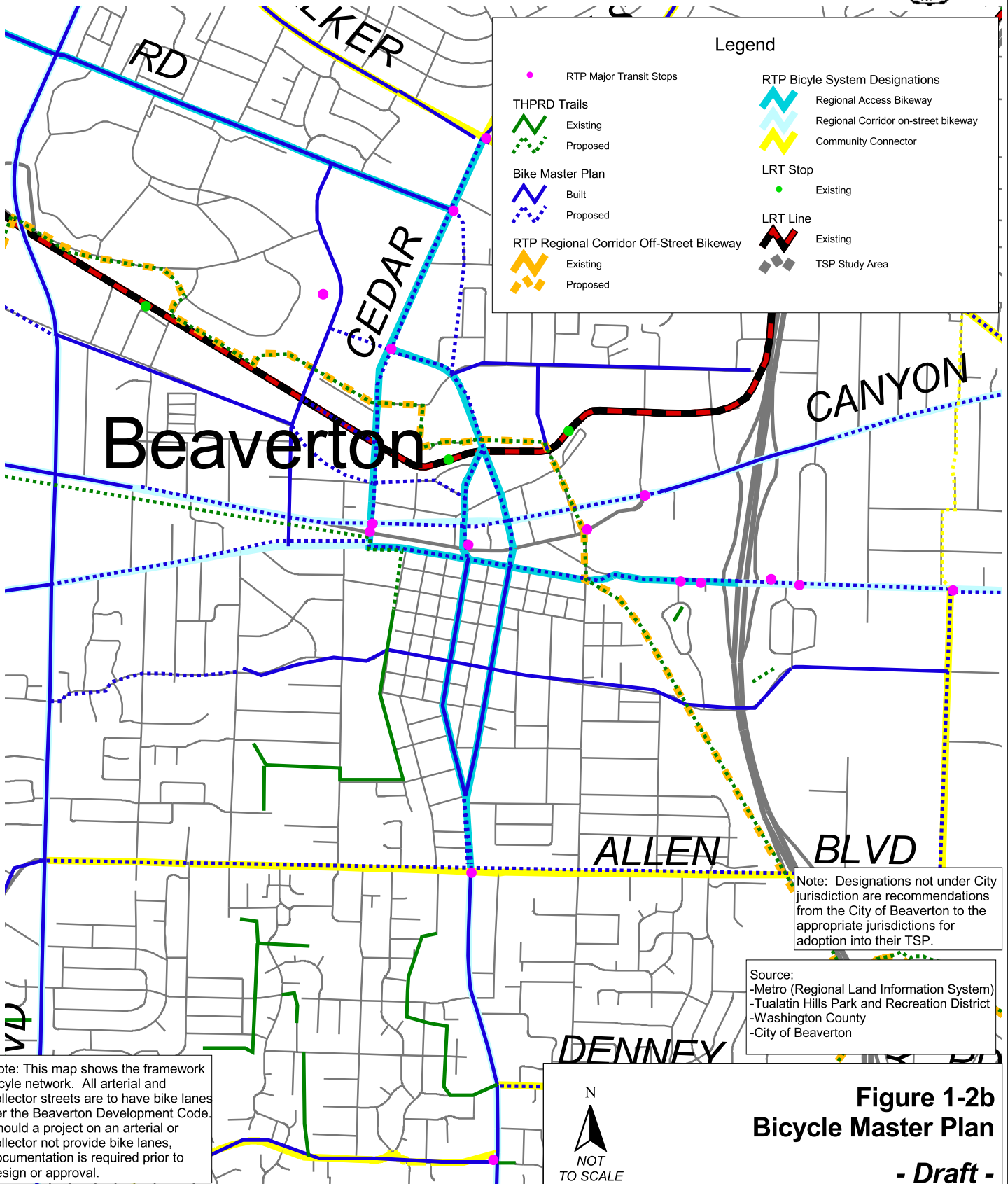
(2001 Dollars)

Project	From	To	Approximate Cost (\$1000's of dollars)
<i>Priority: Connect key bicycle corridors to schools, parks, recreational uses and activity centers</i>			
Millikan Way bike lanes	Hocken Avenue	Cedar Hills Blvd	91
170 th Avenue bike lanes	Rigert Road	Alexander Street	804
170 th /173 rd Avenue bike lanes	Baseline Road	Walker Road	344
Hall Boulevard bike lanes	12 th Street	900 ft south of Allen	154
Hart Road bike lanes	Murray Blvd	167 th Avenue	499
Barnes Road Improvements	Saltzman Road	119 th Avenue	Part of road improv.
Cornell Road Improvements	Murray Blvd	Saltzman Road	Part of Road improv.
Bicycle Action Plan Projects Total Cost (Committed Funding Projects):			\$ 1,892

City of Beaverton Transportation System Plan



City of Beaverton
Transportation System Plan



Transit

Currently, there are twenty-three transit routes serving Beaverton (see Figure 4-9). The transit service has been significantly changed from the last TSP due to the opening of the Westside MAX. The existing transit system coverage area includes approximately 85 percent of the modeled transit supportive zones within the Beaverton TSP study area⁵. The future 2020 land use would increase the transit supportive area and reduce the percentage of coverage to approximately 80 percent (see Figure 4-10) without an increase in service coverage. Tri-Met has addressed some of the future transit needs in Beaverton with the planned 10-year improvements listed in Table 4-13. The City of Beaverton should coordinate with Tri-Met to focus possible future transit coverage on those transit supportive areas not covered by the existing system. Transit amenities were also identified in the Tri-Met Ten-Year Service Improvements⁶ as a high community priority needing attention in 1-5 years. Transit amenities can make transit ridership increase by making transit an attractive travel alternative. The City of Beaverton should coordinate with Tri-Met and Washington County to provide transit shelters at transit stops designated as major transit stops or with daily boardings above 35 persons (costs for transit amenities are included in the TDM Support costs listed in Table 1-12). The City of Beaverton should coordinate the provision of sidewalks along major transit streets with Tri-Met. The City of Beaverton should coordinate the provision of transit pass programs and fareless areas with city employers and the Westside Transportation Alliance TMA.

Due to heavily congested arterial corridors, the City will need to coordinate with Tri-Met on the development of corridor level transit services that can help relieve congestion and forestall more expensive capital infrastructure. High quality regional transit service on corridors such as Scholls Ferry Road, Murray Boulevard, Hall Boulevard, TV Highway, Walker Road, and Allen Boulevard can link many high employment, regional center, and town center areas (consistent with the RTP). Metro's RTP includes transit route designations along corridors defined as follows⁷:

- **Rapid Bus.** Regional rapid bus service emulates LRT service in speed, frequency and comfort, serving major transit routes with limited stops. This service runs at least every 15 minutes during the weekday and weekend mid-day base periods.
- **Frequent Bus.** Frequent Bus service provides slightly slower, but more frequent, local bus service than rapid bus along selected transit corridors. This service runs at least every 10 minutes and includes transit preferential treatments such as reserved bus lanes and signal preemption.
- **Regional Bus.** Regional bus service is provided on most major urban streets. This type of

⁵ Coverage is determined as the area within 0.25 miles of a bus stop or 0.50 miles of a LRT stop

⁶ Transit Choices For Livability Handbook, Tri-Met, 2000.

⁷ Based on the 2000 *Regional Transportation Plan*, Metro, August 12, 2000.

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bus service operates with maximum frequencies of 15 minutes with conventional stop spacing along the route.

The City of Beaverton should coordinate with Tri-Met, ODOT, and Washington County to provide signal priority for transit routes along the RTP designated frequent bus lines (TV Highway/Farmington and Cedar Hills/Hall – approximately 50 signals at approximately \$7000 each – included in the ITS/TSM costs in Table 1-12). Signal priority along the frequent transit routes would improve transit service speed and reliability along these congested corridors with high multi-modal trip potential.

Table 1-6: Tri-Met Ten-Year Service Improvements

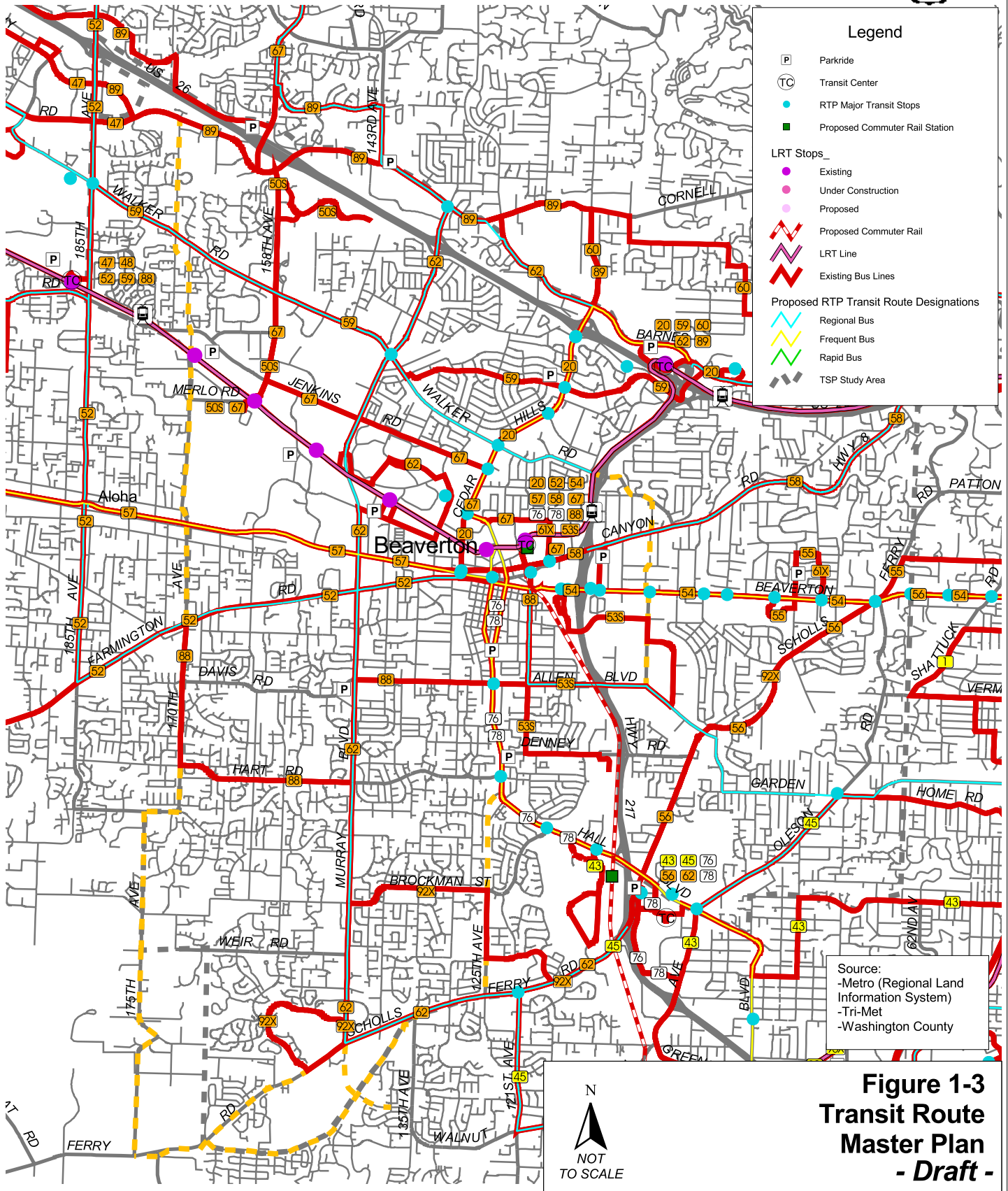
Route Description	Frequency** (minutes)	Rough Annual Cost	Projected Implementation
Beaverton-Washington Sq.-Tigard-Tualatin: Rapid bus or commuter rail connections between these communities, including extension to Wilsonville	30	\$800,000	3-5 years
Nimbus Businesses: Local service between Nimbus employers and destinations in the Washington Sq. area	30	\$385,000	1-3 years
Cornell Oaks Businesses: Shuttle between employers along 158 th and in the Cornell Oaks area to MAX, as part of Westside Max start-up	30	\$150,000	1-3 years
Existing Tri-Met Lines: Improve frequency and span of service on lines serving Farmington Road, 158 th , 185 th , 198 th , Jenkins, Hart, and Denney		\$2,000,000	1-3 years

Source: Transit Choices for Livability Handbook, Tri-Met, 2000.

** Frequency is defined at the time spacing between bus arrivals.

In addition to the Tri-Met 10-year service improvements listed in Table 4-13, the Washington County Commuter Rail project connecting Wilsoville to Beaverton is listed in the RTP as a committed project. The timeline for this project is 2000-2005, with an estimated cost of \$71,500,000.

City of Beaverton
Transportation System Plan



Motor Vehicles

Based upon the evaluation of intersection level of service, 32 of the study intersections would operate at or worse than D/C ratio 1.0 or Level of Service (LOS) E in the 2020 evening peak hour with no improvements beyond the RTP Priority System or 2015 Beaverton TSP improvements. Intersection operation for the existing and base 2020 scenarios are shown in Appendix D. The impact of future growth would be severe without significant investment in transportation improvements. Corridors would become unmanageably congested, resulting in travel speeds below 5 MPH over long stretches of road. Poor performance on arterials and collectors would result in substantial impacts (added through traffic) to other collectors and neighborhood routes. The greatest problem areas can be grouped into the following areas:

- **Lack of east-west capacity.** Three of the key east-west routes (TV Highway, Walker, Cornell and Farmington) all experience significant congestion problems if improvements are not made.
- **Lack of connectivity.** Areas near ORE 217 between Walker and Hall are the best examples, where all north-south movements must use local streets or divert to neighboring arterials.
- **Lack of intersection turning capacity.** Many intersections experience congested conditions, not the need for through capacity, but the need for additional right or left turning capacity.

To address these deficiencies, a series of alternatives and strategies were considered. The recommended mitigation measures for the street system is listed in Table 1-10. These are improvements that go beyond the RTP Priority System or the 2015 Beaverton TSP identified improvements (listed in Tables 1-7 to 1-9). Figures 1-4 through 1-7 show the RTP Priority System motor vehicle improvements, the 2015 TSP motor vehicle improvements, and the 2020 TSP additional motor vehicle improvements. The major road improvements identified for the 2020 Beaverton TSP Update (Bethany, Cornell, Walker, and Murray/TV Highway) are mainly refinements of the RTP recommendations and include some of the RTP Preferred Scenario improvement projects. The detailed intersection improvements go beyond the level of analysis presented in the RTP and are recommended in this TSP based on the detailed intersection counts, forecasts, and LOS calculations.

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Table 1-7
Beaverton Motor Vehicle System Improvements included in the RTP Priority System*
 (1998 Dollars)

RTP #	Location	Improvement	Jurisdiction	Time-Line	Cost
1184	BH Highway/Scholls Ferry Road	Redesign the intersection to improve safety for all modes of travel.	ODOT/WAC O	2006-2010	\$13,000,000
6013	Hall: Scholls Ferry to Locust	Widen to 5 lanes. Includes sidewalk and bike lanes	ODOT	2006-2010	\$4,700,000
6017	Taylor's Ferry: Washington to Oleson	Construct a 3 lanes extension with sidewalks and bike lanes	WACO	2011-2020	\$1,900,000
6025	Scholls Ferry: 217 to 125th	Implement system management strategies	WACO	2000-2005	\$500,000
6052	Highway 217 Overcrossing: Nimbus to Mall Area	Construct a 2 lane crossing including sidewalks and bike lanes	Tigard	2011-2020	\$25,000,000
6119	Murray/Scholls Town Center	Construct 2 lane Teal Road collector extension to Town Center Loop and Barrows, transit collectors from Murray to Town Center Loop, and new neighborhood route connections	WACO/Beaverton	2011-2020	\$11,000,000
6121	Murray: Scholls Ferry to Barrows	Construct a 4 lane extension to Walnut at Barrows including sidewalks and bike lanes	Beaverton/Tigard/WACO	2000-2005	\$7,120,000
6122	Davies Road: Scholls Ferry to Barrows	Construct a 3 lane extension to Barrows including sidewalks and bike lanes	Beaverton	2006-2010	\$1,500,000
3000	ORE 217	Add capacity based on recommendations from the ORE 217 corridor study	ODOT	2011-2020	\$70,000,000
3001	ORE 217: TV Hwy to US 26	Widen the northbound to 3 lanes with ramp improvements	ODOT	2006-2010	\$21,000,000
3002	ORE 217 and US 26	Reconfigure the interchange with braided ramps	ODOT	2006-2010	\$50,000,000
3006	US 26: Camelot Court to Sylvan	Add 3 rd through lane and collector distributor system	ODOT	2000-2005	\$22,000,000
3007	US 26: ORE 217 to Camelot Court	Widen eastbound to 3 lanes	ODOT	2006-2010	\$12,000,000
3009	US 26: Murray to 185th	Widen freeway to 6 lanes with possible HOV lane	ODOT	2011-2020	\$26,000,000
3019	Beaverton Connectivity	Complete several downtown street connections	Beaverton	2000-2005	\$13,200,000
3020	Beaverton Connectivity	Complete several downtown street connections	Beaverton	2006-2010	\$13,300,000
3022	Jenkins: Murray to 158th	Widen to 5 lanes including sidewalks and bike lanes	WACO	2006-2010	\$1,870,000
3023	ORE 217: Allen to Walker	Interchange improvements	ODOT/WAC O/Beaverton	2000-2005	\$3,600,000
3025	TV Hwy: Cedar Hills to 10th	Add capacity based on recommendation from refinement planning	ODOT/WAC O	2011-2020	\$33,200,000
3031	Allen: ORE 217 to Murray	Widen to 5 lanes including sidewalks and bike lanes	Beaverton	2011-2020	\$8,500,000
3032	Cedar Hills: Farmington to Walker	Widen to 5 lanes including sidewalks and bike lanes	Beaverton	2006-2010	\$3,700,000
3033	125 th : Brockman to Hall	Construct a 2 lane extension with turn lanes including sidewalks and bike lanes	Beaverton	2000-2005	\$9,800,000
3034	Hall: Cedar Hills to Hocken	Construct a 3 lane extension with sidewalks and bike lanes	Beaverton	2000-2005	\$4,600,000
3036	158 th /Merlo: 170 th to Walker	Widen to 5 lanes including sidewalks and bike lanes	WACO	2011-2020	\$4,000,000
3038	Center: Hall to 113th	Widen to 3 lanes including sidewalks and bike lanes	Beaverton	2011-2020	\$3,200,000

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3060	TV Hwy: 117 th to Hillsboro	Implement access management strategies	ODOT/WACO	2006-2010	\$15,000,000
3061	TV Hwy: 209 th to ORE 217	Interconnect Traffic Signals	ODOT/WACO	2006-2010	\$1,500,000
3063	Murray: TV Hwy to Allen	Interconnect Traffic Signals	WACO	2000-2005	\$50,000
3069	Scholls Ferry: Hamilton to Garden Home	Widen to 3 lanes including sidewalks and bike lanes	WACO	2011-2020	\$8,000,000
3076	Allen: ORE 217 to Western	Widen to 5 lanes including sidewalks and bike lanes	Beaverton	2011-2020	\$1,000,000
3084	170 th : Alexander to Merlo	Widen to 5 lanes including sidewalks and bike lanes	WACO	2011-2020	\$8,000,000
3085	170 th : Rigert to Blanton to Alexander	Widen to 3 lanes from Rigert to Blanton and 5 lanes from Blanton to Alexander including sidewalks and bike lanes	WACO	2000-2005	\$26,700,000
3086	158 th : Walker to Jenkins	Widen to 5 lanes including bike lanes	WACO	2011-2020	\$450,000
3087	Millikan: TV Hwy to 141 st	Widen to 5 lanes including sidewalks and bike lanes	Beaverton	2011-2020	\$4,000,000
3088	Millikan: 141 st to Hocken	Widen to 3 lanes including sidewalks and bike lanes	WACO	2011-2020	\$3,400,000
3121	TV Hwy: Cedar Hills to Minter Bridge	Refinement Planning to identify phased strategy to implement a limited-access facility	ODOT	2000-2005	N/A
3141	170 th /173 rd : Baseline to Walker	Widen the street to 3 lanes including sidewalks and bike lanes	WACO	2006-2010	\$5,500,000
3143	Walker: Cedar Hills to 158th	Widen to 5 lanes including sidewalks and bike lanes	WACO	2006-2010	\$20,000,000
3144	Walker: 158 th to Amberglen	Widen to 5 lanes including sidewalks and bike lanes	WACO	2006-2010	\$10,000,000
3148	Walker: Cedar Hills to ORE 217	Widen to 3 lanes including sidewalks and bike lanes	WACO	2006-2010	\$8,000,000
3175	Barnes: ORE 217 to 119th	Widen to 5 lanes including sidewalks and bike lanes	WACO	2006-2010	\$6,200,000
3177	Cedar Hills/Barnes	Reconstruct intersection and approaches to add travel lanes, turn lanes, and traffic signal upgrades	WACO	2000-2005	\$1,800,000
3181	Cornell: US 26 to 143rd	Widen to 5 lanes including sidewalks and bike lanes	WACO	2011-2020	\$3,000,000
3183	Cornell: 143 rd to Saltzman	Widen to 3 lanes including sidewalks and bike lanes	WACO	2000-2005	\$4,600,000
3185	Barnes: Saltzman to 119th	Widen to 5 lanes including sidewalks and bike lanes	WACO	2000-2005	\$5,300,000
3186	Murray: Science Park to Cornell	Widen to 5 lanes including sidewalks and bike lanes	WACO	2000-2005	\$3,100,000
3191	Cornell	Modify intersections at Saltzman, Barnes, Murray, and Trail	WACO	2011-2020	\$500,000
3204	Cornell: Bethany to 179th	Widen to 5 lanes including sidewalks and bike lanes	WACO	2006-2010	\$4,000,000
3205	173rd/174th	Construct a new 2 lane undercrossing of US 26 from Cornell to Bronson including sidewalks and bike lanes	WACO	2011-2020	\$14,800,000
3214	Farmington: 172 nd to 185th	Widen to 5 lanes including sidewalks and bike lanes	WACO	2011-2020	\$10,000,000
			TOTAL		\$529,590,000

*This project list is based on the August 10th 2000, *2000 Regional Transportation Plan*, and includes projects in the Financially Constrained and Priority Motor Vehicle System

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Table 1-8
Beaverton 2015 TSP Motor Vehicle Improvements not identified in the RTP Priority Scenario

(1997 Dollars)

Location	Description	Jurisdiction	Cost
Hocken at TV and Farmington	Widen Hocken to accommodate 2 additional lanes between TV and Farmington to allow turn lanes, Widen TV from 141 st to Hocken to allow 3 through lanes and additional turn lanes	ODOT/Beaverton	\$6,100,000
ORE 217: Walker/Cabot/Canyon Ramps	Braid ramps between Canyon and Walker/Cabot split diamond	ODOT	\$20,800,000
Bany/Hart: 170 th to 160th	Improve to 2-3 lanes including sidewalks and bike lanes	WACO	\$1,000,000
170 th : Merlo to Baseline	Widen to 3 lanes including sidewalks and bike lanes	WACO	\$2,100,000
170 th : Division to Blanton	Widen to 5 lanes including sidewalks and bike lanes	WACO	\$2,500,000
Hyland Extension: Carr to Hart	Extend Roadway	Beaverton	\$115,000
ORE 217: Denney/Allen	Collector/Distributor connection	ODOT	\$8,600,000
Cedar Hills: Walker to US 26	Complete 5 lane roadway with access control including sidewalks and bike lanes	WACO	\$2,100,000
Walker Road: Murray to ORE 217	Widen to 5 lanes including sidewalks and bike lanes	WACO	\$26,500,000
Jenkins: Murray to Cedar Hills	Widen to 5 lanes including sidewalks and bike lanes	WACO	\$3,800,000
Scholls Ferry: Hall to 125th	Widen to 7 lanes including sidewalks and bike lanes	WACO/ODOT	\$15,760,000
Scholls Ferry: Teal to 175th	Widen to 5 lanes including sidewalks and bike lanes	WACO	\$4,000,000
Beard/Nora: Murray to 170th	Improve to 2-3 lanes including sidewalks and bike lanes	WACO	\$6,600,000
Weir: Murray to 175th	Improve to 3 lanes including sidewalks and bike lanes	Beaverton	\$3,700,000
Hall north of Center	Extend new 5 lane roadway north of Center to connect with Jenkins at Cedar Hills including sidewalks and bike lanes	Beaverton	\$11,000,000
Center: Cedar Hills to Hocken via Westgate	Extend public roadway with 3 lanes including sidewalks and bike lanes from Center to Westgate and from Westgate to Hocken	Beaverton	\$1,500,000
141 st : Tek to Farmington	Realign and extend 2/3 lane roadway including sidewalks and bike lanes	Beaverton	\$2,800,000
Nimbus: Hall to Denney	Extend 2/3 lane roadway including sidewalks and bike lanes	Beaverton	\$8,300,000
Local Streets	Add local and collector connectivity	Beaverton	\$41,900,000
Traffic Signals	Addition of 50 traffic signals per plan	Beaverton/ WACO/ODOT	\$12,500,000
Intersection Improvements	Listed in Table 4-16	Beaverton/ WACO/ODOT	\$64,025,000
		TOTAL	\$245,700,000

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Table 1-9
Committed/Completed Beaverton 2015 TSP Motor Vehicle Improvements
(1997 Dollars)

Location	Description	Jurisdiction	Cost
Farmington: Murray to 172nd	Widen to 5 lanes including sidewalks and bike lanes	WACO	\$15,200,000
Oak: 160 th to 170 th	Widen roadway including sidewalks and bike lanes	WACO	\$1,600,000
US 26: ORE 217 to Murray	Widen to 6 lanes and add braided ramps	ODOT	\$13,000,000
Jenkins: Cedar Hills to Murray	Widen to 3 lanes including sidewalks and bike lanes	WACO	\$3,100,000
170 th : Rigert to Alexander	Widen to 5 lanes including sidewalks and bike lanes	WACO	\$8,000,000
Millikan: Hocken to Cedar Hills	Construct new 3 lane extension with sidewalks and bike lanes	Beaverton	\$4,300,000
Hart: Murray to 165 th	Widen to 3 lanes including sidewalks and bike lanes	Beaverton	\$7,100,000
Lombard: Broadway to Farmington	Realign and add turn lanes including sidewalks	Beaverton	\$1,600,000
Hall Boulevard at Scholls Ferry	Provide southbound right turn lane	ODOT	\$250,000
Hall: 12 th St to 500 feet south of Allen	Retrofit to include bike lanes; intersection turn lanes at Allen	Beaverton	\$1,438,000
Farmington: Murray to Hocken	Widen to 5 lanes including turn lanes, sidewalks, and bike lanes	Beaverton	\$9,300,000
		TOTAL	\$64,888,000

Table 1-10
Beaverton 2020 TSP Preferred Additional Motor Vehicle Improvement Plan

Note: Location #'s listed as "b" indicate that the improvement is in addition to an intersection improvement at that location from the 2015 TSP, intersections that were not included in the 2015 TSP improvement plan are numbered starting with 101
(2001 Dollars)

Location #	Location	Description	Cost
	Bethany Boulevard: Cornell to Bronson	Widen street to 5 lanes including sidewalks and bike lanes (this includes the widening of the US 26 overcrossing and intersection improvements).	\$3,424,000
	Cornell: 143 rd to Dale	Widen street to 5 lanes including sidewalks and bike lanes.	\$5,197,500
	Cornell: Dale to Saltzman	Future capacity improvement based on additional study and coordination with Washington County	\$8,620,000
	Walker: Cedar Hills to ORE 217	Widen street to 5 lanes including sidewalks and bike lane.	\$8,970,000
	Murray: TV Hwy to Farmington	Construct an 4 lane overpass (Murray over TV Highway and Farmington), including sidewalks, bike lanes, and interchange connections	\$28,517,500
	103 rd : Western to Walker	Improve existing roadway and construct new connections and intersection alignments to provide connectivity from Walker to Western. This project includes sidewalks and bike lanes and should be built as development occurs.	\$5,500,000
	120 th Avenue: Henry to Canyon Road	Construct a 2 lane collector road, including sidewalks and bike lanes	\$3,900,000
	Fairfield: Cedar Hills to Hocken	Construct a 2 lane roadway, including sidewalks and bike lanes	\$5,500,000
	Rose Biggi: Canyon to Broadway	Construct a 2 lane collector road, including sidewalks and bike lanes	\$1,200,000
101	Bethany/US 26 WB	add 2nd WB RT Lane, NB LT Lane	N/A
102	Bethany/Cornell	overlap SB RT	N/A
103	Cornell/173rd	add WB RT lane, 2nd NB LT lane, NB RT lane, SB RT lane	\$2,200,000
6b	170th/Farmington	add EB RT lane, WB RT lane (signal modification)	\$750,000
11b	158th/Jenkins	overlap NB RT	\$125,000
104	Cornell/US 26 WB	add 2nd WB LT lane (structure work)	\$1,000,000
105	Murray/Cornell	overlap NB RT, add 2nd NB LT lane (Cornell 5 lanes)	\$1,000,000
106	Murray/US 26 WB	add 2nd WB RT Lane	\$500,000
17b	Murray/Walker	increase cycle length by 20 seconds (to 120)	\$125,000
19b	Murray/TV Highway	2 new signals, 2 RT Lanes, 2 Double LT Lanes	N/A
20b	Murray/Farmington	2 new signals, 2 RT Lanes, 2 Double LT Lanes	N/A

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Location #	Location	Description	Cost
22b	Murray/Allen	add 2nd WB LT lane, 2nd WB RT lane, overlap WB RT lane (signal modification)	\$1,250,000
107	Cedar Hills/Barnes	add 2nd NB lane and SB LT lane	\$1,000,000
108	Cornell/Saltzman	add 2nd NB lane and SB LT lane (Cornell to 5 lanes)	\$2,000,000
109	Canyon/Lombard	add EB RT lane	\$500,000
65b	Denney/ORE 217 SB	add EB RT lane (structure work)	\$1,100,000
110	BH Highway/Laurelwood	add SB LT lane (signal modification and ROW)	\$2,000,000
111	Scholls Ferry/Laurelwood	install traffic signal, align with Nicol, ROW, 2 LT lane modifications	\$1,750,000
112	Hall/ORE 217 SB/Cascade	add SB RT lane	\$250,000
43b	Hall/Greenway	add EB RT lane	\$500,000
42b	Hall/Denney	add 2nd WB LT lane	\$500,000
36b	Farmington/Cedar Hills	add 2nd EB LT lane, ROW	\$1,250,000
32b	Cedar Hills/Jenkins	Jenkins to 5 lanes, overlap WB RT	\$125,000
31b	Cedar Hills/Walker	add 40 seconds cycle length to 140	\$125,000
113	Murray/Brockman	add WB RT lane, SB RT lane, add 20 seconds cycle to 120 seconds, ROW	\$100,000
47b	Scholls Ferry/125th	overlap SB RT	\$125,000
50b	Scholls Ferry/ORE 217 NB on ramp	add 2nd NB LT lane and a 2nd WB LT lane	\$1,000,000
		TOTAL	\$90,104,000

City of Beaverton Transportation System Plan



LEGEND

- 3000 - Priority System Project Number
- 3000 - Financially Constrained System Project Number
- - Motor Vehicle Project Location
- - - - Proposed Future Street
- 2000 TSP Update Study Area Boundary Line
- Projects With Committed Funds

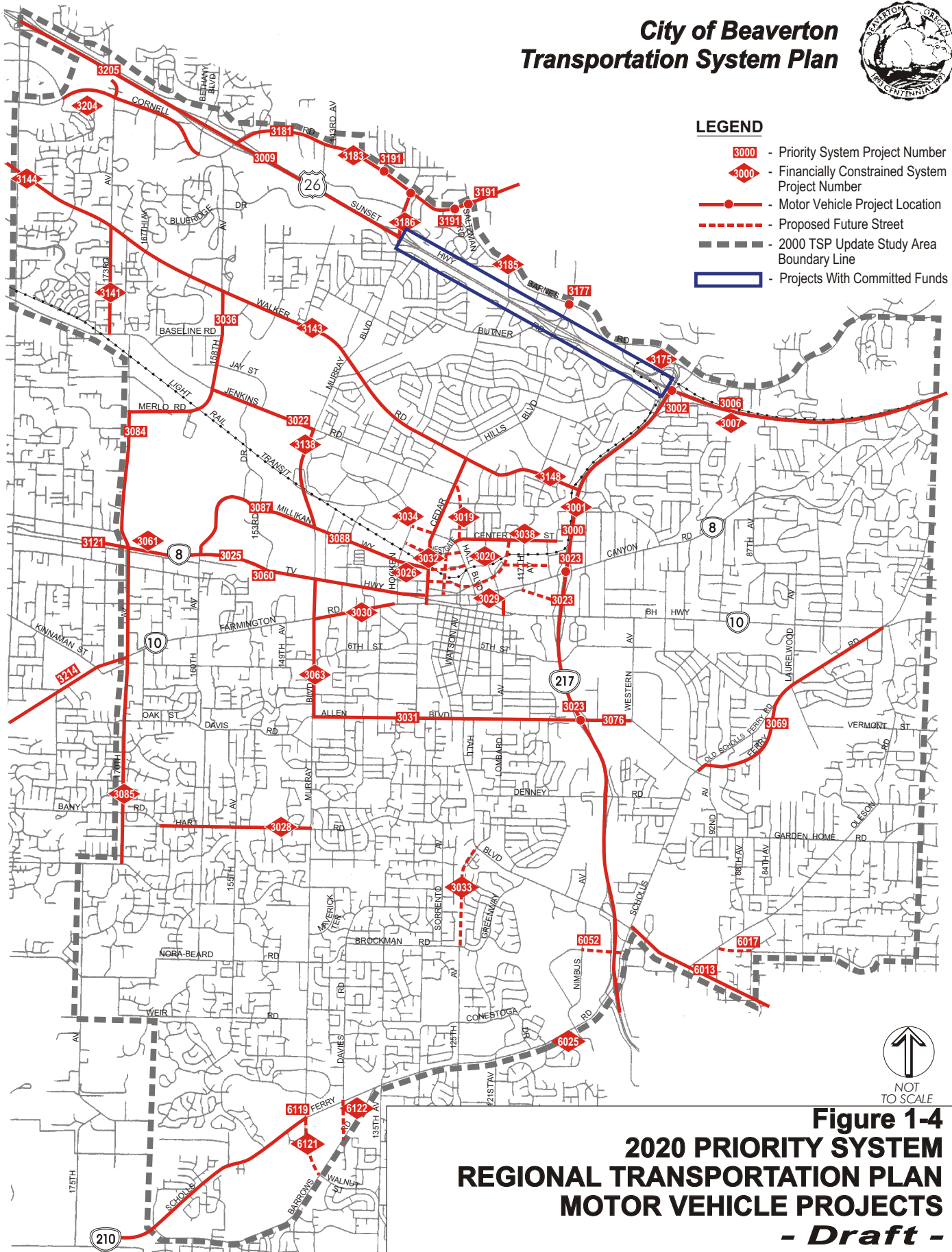


Figure 1-4
2020 PRIORITY SYSTEM
REGIONAL TRANSPORTATION PLAN
MOTOR VEHICLE PROJECTS
- Draft -

TSP Figure 1-5

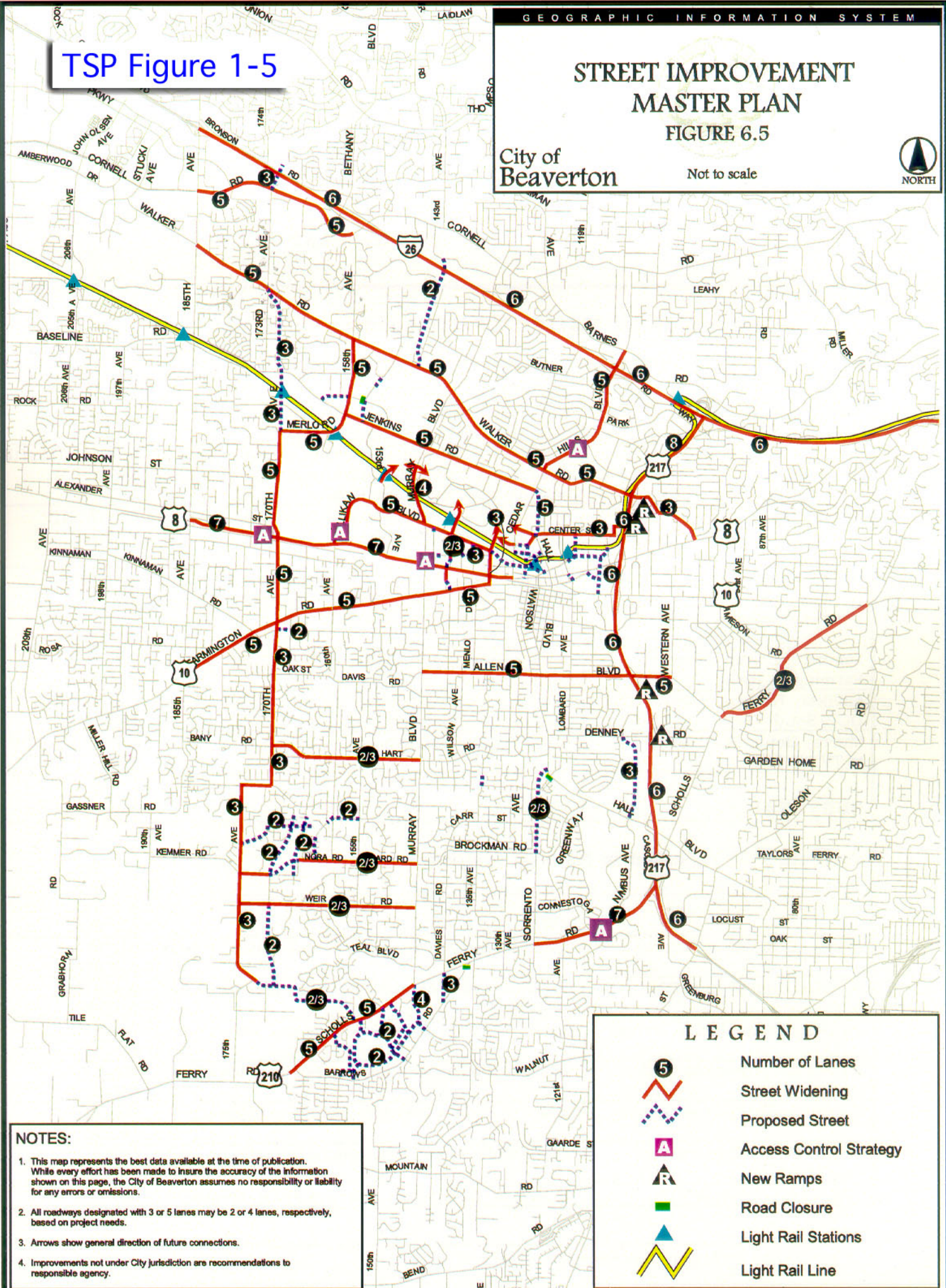
GEOGRAPHIC INFORMATION SYSTEM

STREET IMPROVEMENT MASTER PLAN

FIGURE 6.5

City of
Beaverton

Not to scale



NOTES:

1. This map represents the best data available at the time of publication. While every effort has been made to insure the accuracy of the information shown on this page, the City of Beaverton assumes no responsibility or liability for any errors or omissions.
2. All roadways designated with 3 or 5 lanes may be 2 or 4 lanes, respectively, based on project needs.
3. Arrows show general direction of future connections.
4. Improvements not under City jurisdiction are recommendations to responsible agency.

LEGEND

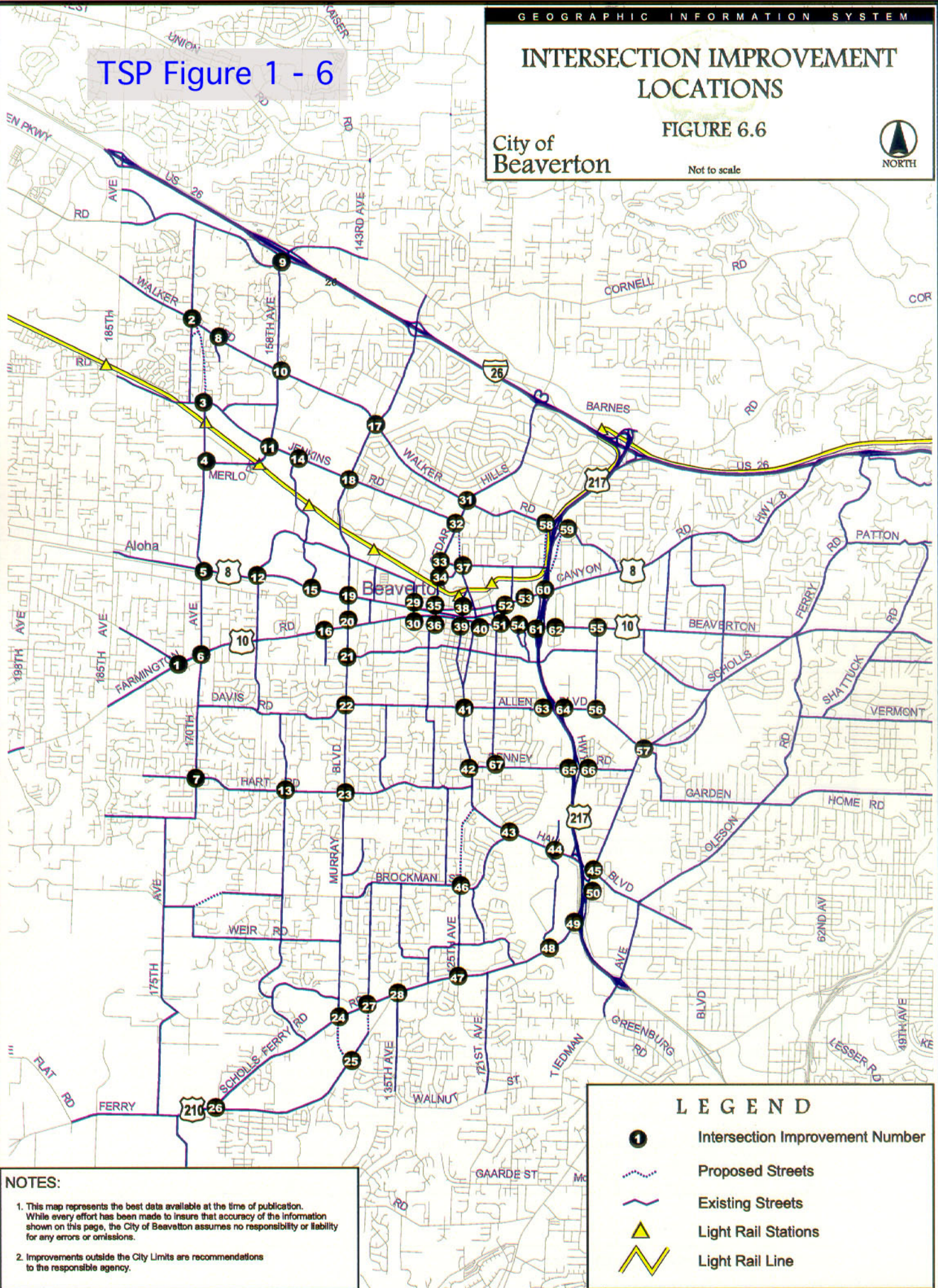
-  Number of Lanes
-  Street Widening
-  Proposed Street
-  Access Control Strategy
-  New Ramps
-  Road Closure
-  Light Rail Stations
-  Light Rail Line

TSP Figure 1 - 6

INTERSECTION IMPROVEMENT
LOCATIONSCity of
Beaverton

FIGURE 6.6

Not to scale

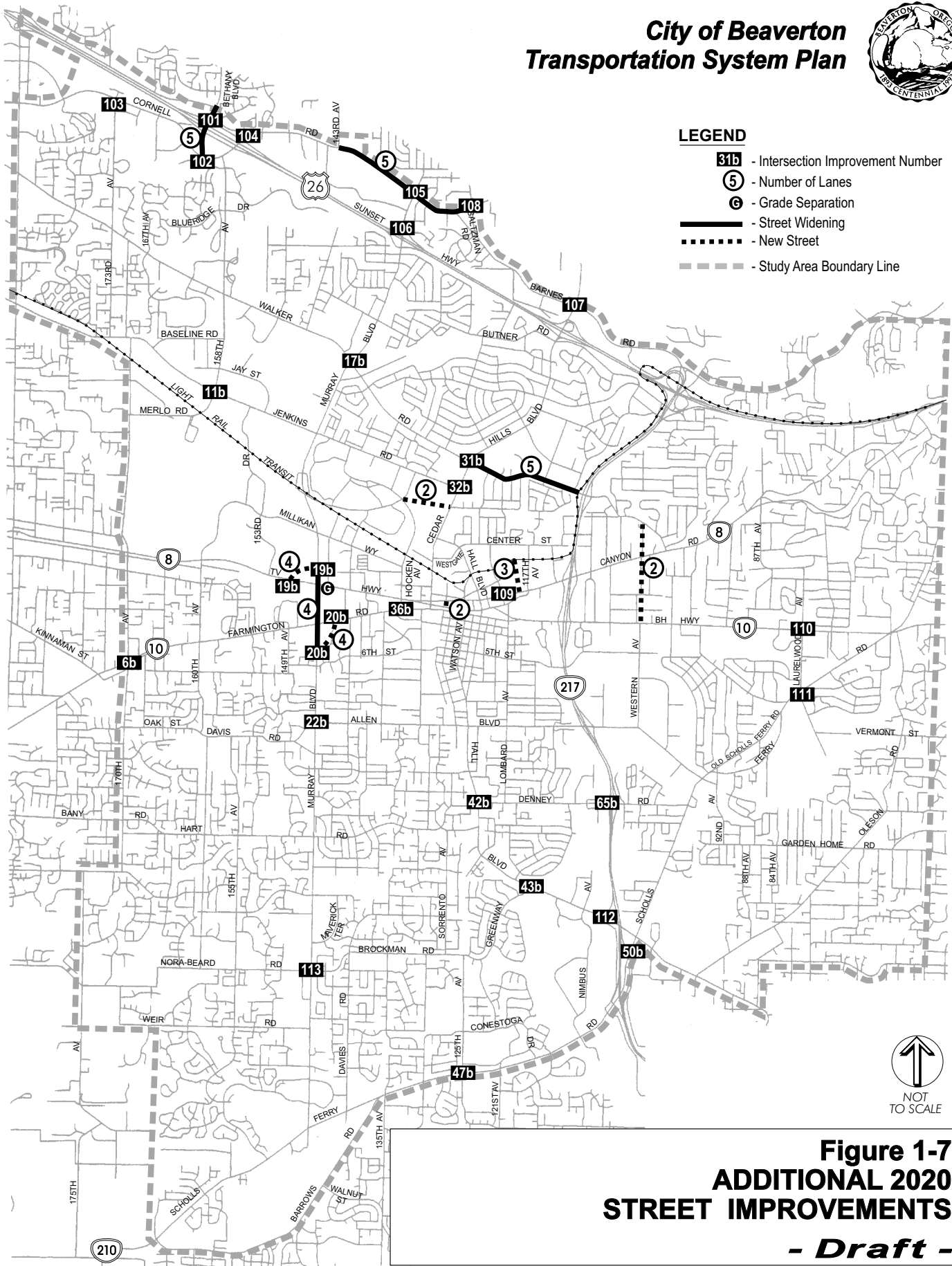


City of Beaverton Transportation System Plan



LEGEND

- 31b** - Intersection Improvement Number
- 5** - Number of Lanes
- G** - Grade Separation
- - Street Widening
- - New Street
- - - -** - Study Area Boundary Line



**Figure 1-7
ADDITIONAL 2020
STREET IMPROVEMENTS
- Draft -**

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Functional Classification

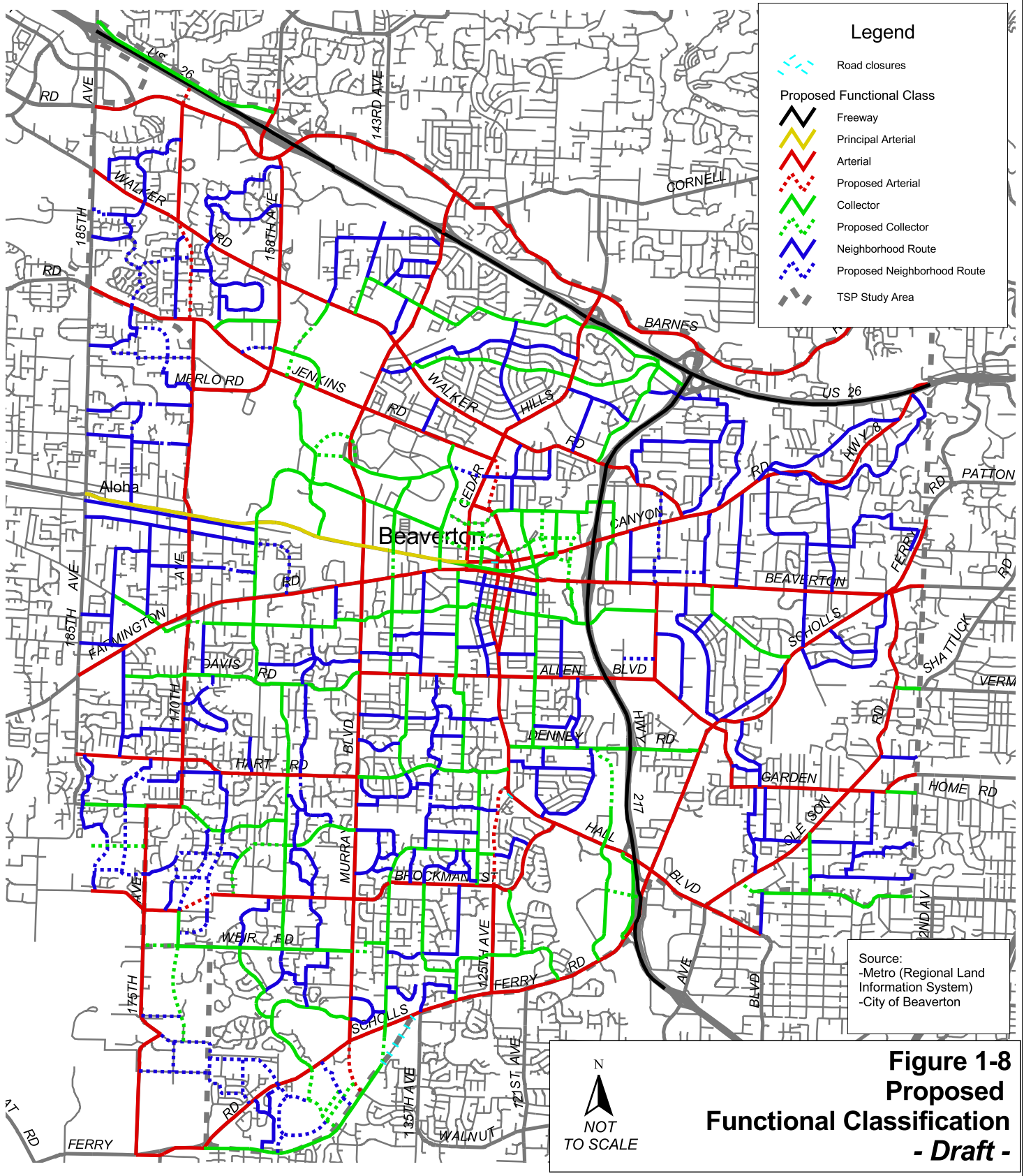
The current functional classification of streets in Beaverton was updated to reflect the expanded TSP study area, on-going regional planning, the functional needs of Beaverton, and consistency with the Regional Transportation Plan. Classifications of principal arterial, arterial, collector, neighborhood route and local have been developed based on connectivity (defined in the 2015 TSP), which is the best indicator of function. Figure 1-8 summarizes the functional classification recommendations. Appendix F summarizes the various jurisdictional functional classifications of major roadways with the TSP study area in a matrix format. This comparison matrix provides a comparison of the adopted City of Beaverton arterial designations to the Washington County and Metro major/minor arterial designations.

The functional classification map includes changes to Jay Street (to keep it open as a collector), changes to Hart Road and Davis Road (to switch the arterial/collector classifications), and changes to TV Highway (changed to a Principal Arterial to be consistent with the RTP). The discussion and recommendations for these changes are included in Chapter 4.

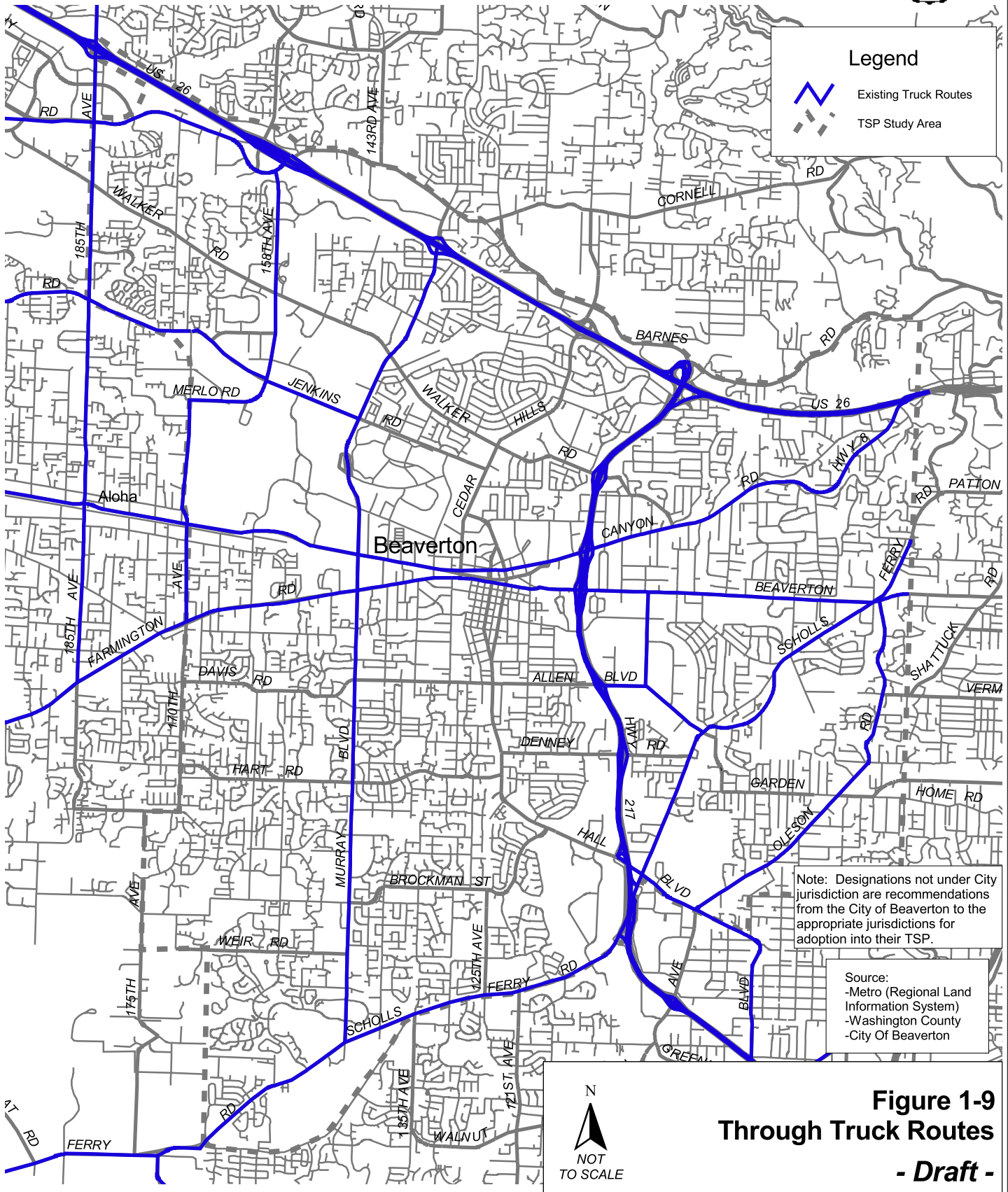
Trucks

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The establishment of through truck routes provides for this efficient movement while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. The through truck route map from the previous TSP was updated to include the expanded study area (See Figure 1-9) utilizing information from the currently adopted Washington County Transportation Plan (1988) and the recent RTP (2000). The objective of this route designation is to allow these routes to focus on design criteria that is “truck friendly”; i.e. 12-foot travel lanes, longer access spacing, 35-foot (or larger) curb returns, and pavement design that accommodates a larger share of trucks. The designated through truck routes in the TSP Study area include and exceed the coverage included in the RTP designations.

City of Beaverton
Transportation System Plan



City of Beaverton Transportation System Plan



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Funding

The 2015 Beaverton TSP identified and discussed the funding sources and opportunities for the City of Beaverton. There are several potential funding sources for transportation improvements. These are sources that have been used in the past by agencies in Oregon. In most cases, these funding sources are sufficient to fund transportation improvements for local communities. Due to the complexity of today's transportation projects, it is necessary to seek several avenues for funding projects. Unique or hybrid funding of projects generally will include these funding sources, combined in a new package. Table 1-11 summarizes several funding options available for transportation improvements. Examples of funding sources which generally do not provide funding for roadways include: Property Tax General Funds, Car Rental Tax, Transient Lodging Tax, Business Income Tax, Business License Tax and Communication Services Tax.

Within the Portland region, local funding for major transportation projects is typically brought to a vote of the public for approval. Specific projects are outlined for use of public funds, such as the Major Streets Transportation Improvement Program (MSTIP) in Washington County or the Westside Light Rail Project. Because of the need to gain public approval for transportation funding, it is important to develop a consensus in the community that supports needed transportation improvements. That is the value of the Transportation System Plan.

Costs

Order of magnitude cost estimates were developed for the projects identified in the auto, bicycle and pedestrian elements. Cost estimates from the RTP or MSTIP projects in Beaverton were used in this study. Other projects were estimated using general unit costs for transportation improvements. Many of the project costs were developed by Washington County, Metro or ODOT for projects in the RTP. Where the TSP identified the comparable needs, these project costs were utilized. Table 1-12 summarizes the total costs outlined in the TSP. Current transportation revenue for the City of Beaverton can be summarized as noted in Table 1-13. Presuming a constant funding level for 20 years, this would potentially fund less than \$300,000,000 of transportation projects (maintenance, operation, and construction). There is a substantial gap between the TSP outlined funding needs and the current sources of funding (\$1,028 million = 1,292-264). The 2015 TSP outlines several methods for increasing transportation funding or seeking alternative solutions to better balance transportation costs and revenue. These methods are also recommended in this 2020 TSP Update.

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Table 1-11
Potential Transportation Revenue Sources

Type	Description
System Development Charges (SDC)	SDCs or Traffic Impact Fees have been used in Oregon and throughout the United States. The cornerstone to development of SDC's involves two principals: 1) there must be a reasonable connection between growth generated by development and the facilities constructed to serve that growth (generally determined by level of service or connectivity); and 2) there must be a general system-wide connection between the fees collected from the development and the benefits development receives. Charges are typically developed based on a measurement of the demand that new development places on the street system and the capital costs required to meet that demand. Washington County has a traffic impact fee (TIF) which was voter approved. SDCs do not require a vote of the public.
Gas Tax	The State, cities and counties provide their basic roadway funding through a tax placed on gasoline. State gas tax is approved legislatively while local gas taxes are approved by voters. State funds are dedicated to roadway construction and maintenance, with one percent allocated to pedestrian and bicycle needs. This tax does not fall under the Measure 5 limits, because it is a pay-as-you-go user tax.
Other Motor Vehicle Fees	The state collects truck weight mile taxes, vehicle registration fees, and license fees. These funds are pooled together with the gas tax in distributing state motor vehicle fees to local agencies. Annual motor vehicle fee allocations to Washington County amount to about \$100 million (including gas tax).
Street Utility Fees	Certain cities have used street utility fees for maintenance. The fees are typically collected monthly with water or sewer bills. These funds are not for capacity improvements, but for supporting local roadway maintenance based upon land use type and trip generation. This frees other revenue sources for capacity needs. Utility fees can be vulnerable to Measure 5 limitations, unless they include provisions for property owners to reduce or eliminate charges based on actual use.
Exactions	Frontage improvements are common examples of exaction costs passed onto developers. These have been used to build much of Beaverton's local street system. Developers of sites adjacent to unimproved roadway frontage are responsible to provide those roadway improvements. Developers of sites adjacent to improvements identified as SDC projects can be credited the value of their frontage work, which is included in the SDC project-list cost estimate.
Local Improvement Districts (LID)	LIDs provide a means for funding specific improvements that benefit a specific group of property owners. LIDs require owner/voter approval and a specific project definition. Assessments are placed against benefiting properties to pay for improvements. LIDs can be matched against other funds where a project has system wide benefit, beyond benefiting the adjacent properties. Fees are paid through property tax bills.
Special Assessments	A variety of special assessments are available in Oregon to defray costs of sidewalks, curbs, gutters, street lighting, parking and CBD or commercial zone transportation improvements. These assessments would likely fall within the Measure 5 limitations. In Washington County, other examples of transportation assessments include MSTIP (Major Streets Transportation Improvement Program) and the local maintenance property tax levy. Both of these are property tax assessments, which have been imposed through votes of the public. A regional example would be the Westside LRT where the local share of funding was voter approved as an addition to property tax.
Driveway Fees	Gresham collects a Public Street Charge and a Driveway Approach Permit Fee. These fees are project specific and vary year to year based upon development permits. These funds are used for city maintenance and operation.
Employment Taxes	Tri-Met collects a tax for transit operations in the Portland region through payroll and self employment taxes. Approximately \$120 million are collected annually in the Portland region for transit.
Oregon Special Public Works Fund	The Special Public Works Fund (SPWF) Program was created by the legislature in 1985 as an economic development element of the Oregon Lottery. The program provides grants and loan assistance to eligible municipalities. There has been limited use of these funds on urban arterials. This is commonly used on state highways (a recent example being Immediate Opportunity Funds used for the US 26/Shute interchange associated with Nike)

Transportation Element	Approximate Cost
Street Improvement Projects: Currently Funded	\$73,032,000
Unfunded	\$962,235,000
Signal Coordination/ITS/TSM Systems	\$6,415,000
Road Maintenance (assumes 4% per year growth)	\$100,000,000
Bicycle Master Plan	\$28,125,000
Pedestrian Action Plan	\$45,078,000
Transit Service Improvements	\$144,830,000
Pedestrian/School Safety Program (\$10,000/yr)	\$200,000
Sidewalk Grant Program (\$50,000/yr)	\$1,000,000
Park-and-ride Expansion (1,000 spaces)	\$2,000,000
Neighborhood Traffic Management (\$75,000/yr)	\$1,500,000
TSP Support Documents (i.e. Design standard update, TSP updates, ...)	\$500,000
TDM Support (\$50,000/yr)	\$1,000,000
TWENTY YEAR TOTAL in 2001 Dollars	\$1,292,883,000

Source	Approximate Annual Revenue
State Motor Vehicle Fees to City	\$3,000,000
County Gas Tax to City	\$250,000
TIF to City	\$1,200,000
Miscellaneous	\$250,000
MSTIP to City (approximate)	\$2,500,000
State/Federal Fees use in City (approximate, assumes 35% of allocation used for capital)	\$6,000,000
Annual TOTAL	\$13,200,000
20 YEARS OF CURRENT FUNDING	\$264,000,000